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First Results from the T2K Experiment

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T2K is a long baseline high intensity neutrino oscillation experiment employing an off-axis design to search for the as yet unseen appearance of ν_e neutrinos in a ν_μ beam. The neutrino beam originates at the J-PARC facility in Tokai, Japan and the Super-Kamiokande (SK) detector, located 295 km away, measures the composition of the oscillated beam. The SK data is searched for an excess of ν_e neutrinos, constraining the allowed parameter space of $\sin^2(2\theta_{13})$, the parameter governing the amplitude of oscillations from ν_μ to ν_e . This amplitude is of particular interest since it also modulates the amplitude of CP violating terms in the lepton mixing matrix. T2K will also precisely measure Δm_{23}^2 and $\sin^2(2\theta_{23})$, the parameters governing the disappearance of ν_μ . In this talk, I will present results from the first T2K physics run in 2010 with 3.23×10^{19} protons on target.

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Classification de Session: Neutrinos

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